

33. An article of claim 32 wherein the substrate is a microelectronic wafer or a flat panel display substrate.

34. A polymer that comprises 1) acrylate acid labile groups; 2) meta-hydroxyphenyl groups; and 3) para-hydroxyphenyl groups.

REMARKS

The undersigned attorney appreciates the helpful comments and courtesy extended by Examiners Lee and Baxter during the recent interview on the application.

Claims 1, 3, 6, 8, 17 and 18 have been amended. Claims 21-34 have been added. No new matter has been added by virtue of the amendments. For instance, basis for the amendments of claims 1, 3, 6, 8, 17 and 18 appears e.g. at page 4, lines 1-4; page 5, line 27 through page 6, line 2; and the formulae of the application. Support for the new claims 21-34 appears e.g. in the original claims of the application. Support for new claims 21, 22 and 25 also appears e.g. at page 8, lines 2-5 and page 9, lines 9-11 of the application.

Before addressing the Section 103 rejection in detail, a brief discussion of Applicants' invention should be helpful.

Applicants have discovered copolymers that comprise: at least one repeating unit that is a meta-hydroxyphenyl derivative; at least one repeating unit that is a para-hydroxyphenyl derivative; and one or more photoacid labile groups. See page 2, last paragraph of the application.

Particularly preferred polymers of the invention have repeating units that have a single hydroxy moiety on the metahydroxy-phenyl group. See page 4, lines 1-4; and page 5, last two lines of the application. Acrylates are preferred acid labile groups, such as tert-butyl acrylate.

Applicants discovered that addition of a meta-hydroxyphenyl unit to a polymer containing para-hydroxyphenyl units and acid-labile units can quite favorably impact dissolution rates and solubility differentials between exposed and unexposed regions of a resist coating layer that contains the polymer. See page 3, first paragraph of the application. See also the comparative results set forth in the Rule 132 Declaration filed herewith.

Claims 1-20 were rejected under 35 U.S.C. 103 over Watanabe et al. (U.S. Patent 5,844,057). As the rejection is understood, Watanabe is cited for a report of phenyl groups that have multiple phenyl ring substituents. Watanabe is also cited for a polymer that has acid labile groups pendant to a phenyl group. The rejection is traversed.

Applicants' independent claim 1 reads as follows:

1. A photoresist composition comprising a photoactive component and a resin that comprises a polymer that comprises 1) an acid labile group; 2) a meta-hydroxyphenyl group; and 3) a para-hydroxyphenyl group, wherein the meta-hydroxyphenyl group has a single meta-hydroxy moiety and is unsubstituted at other available ring positions.

Applicants' independent claim 24 reads as follows:

24. A photoresist composition comprising a photoactive component and a resin that comprises a polymer that comprises 1) an acrylate acid labile group; 2) a meta-hydroxyphenyl group; and 3) a para-hydroxyphenyl group.

Watanabe clearly does not teach or suggest such photoresists.

In particular, with respect to claim 1, Watanabe reports polymers wherein phenyl units have multiple ring substitution. See columns 23 through 30 of Watanabe.

Nowhere does Watanabe report a polymer that contains a meta-hydroxyphenyl group that is unsubstituted at available ring positions other than by a single meta-hydroxyphenyl moiety.

Nor does Watanabe et al. suggest polymers that contain an acrylate acid labile group as recited in Applicants' claim 24. Rather, Watanabe reports linking certain acid labile groups onto phenolic groups.

While Applicants fully believe that a *prima facie* case of obviousness is not presented by the Watanabe document, Applicants also submit herewith the Rule 132 Declaration of Dr. Pandya, a co-inventor on the application. That Declaration is believed to effectively rebut any *prima facie* case that may be contended to exist.

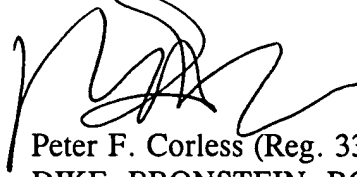
The Declaration details significantly reduced dissolution rates provided by polymers of the invention that include meta-hydroxyphenyl units, relative to comparable polymers that do not include meta-hydroxyphenyl units. Such reduced dissolution rates can provide significantly enhanced lithographic performance of a photoresist that contains the polymer. See page 3, first paragraph of the application.

In view thereof, reconsideration and withdrawal of the rejection are requested.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

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Respectfully submitted,

A handwritten signature in black ink, appearing to be 'Peter F. Corless', written over the printed name.

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